CLAIMS

What is claimed is:

1. A system for monitoring and controlling the temperature of an organ or tissue area during surgery, comprising:

at least one temperature sensor configured for engagement with the organ for sensing the temperature of the organ;

means for selecting the temperature of said organ during said surgery;

means for comparing said sensed organ temperature with said selected organ temperature;

at least one source of fluid;

means for regulating the temperature of said at least one source of fluid; and

a mechanism for pumping said fluid from said at least one source of fluid to the organ, wherein the regulated temperature of said fluid is sufficient to bring the sensed temperature of the organ to the selected temperature of the organ.

2. The system of claim 1 further comprising at least one fluid outlet conduit extending from said at least one source of fluid to said organ.

3. The system of claim 2 wherein said at least one fluid outlet conduit is configured for delivering fluid to the interior of the organ.

4. The system of claim 2 wherein said at least one fluid outlet conduit is configured for delivering fluid to the exterior of the organ.

5. The system of claim 1 further comprising a display for displaying temperature data.

6. The system of claim 1 wherein said at least one temperature sensor is configured to be in flush contact with a surface of the organ.

7. The system of claim 6 wherein said at least one temperature sensor comprises a portion which is suturable to the surface of the organ.

8. The system of claim 6 wherein said at least one temperature sensor comprises an adhesive patch.

9. The system of claim 1 wherein said at least one temperature sensor comprises a probe-like configuration.

10. The system of claim 9 wherein said at least one temperature sensor has an organ penetration means.

11. The system of claim 1 wherein said means for selecting the temperature of said organ comprises a user keypad.

12. The system of claim 1 wherein said means for comparing said sensed organ temperature with said selected organ temperature comprises a microprocessor.

13. The system of claim 1 comprising a plurality of fluid sources.

14. The system of claim 13 wherein at least one fluid of said plurality of fluid sources comprises one of the group consisting of saline, cardioplegia and blood.

15. The system of claim 13 wherein the temperature of each said fluid is independently regulated.

16. The system of claim 1 wherein said fluid temperature regulating means comprises at least one of the group consisting of a heat exchanger and a coolant.

17. The system of claim 1 wherein said pumping mechanism comprises a peristaltic pump.

18. The system of claim 1 further comprising two or more sources of fluid, wherein said pumping mechanism comprises a chamber for mixing two or more fluids of said fluid sources.

19. The system of 1 wherein the speed and/or oscillation frequency of said pumping mechanism is variable.

20. The system of 1 further comprising an alarm in response to a sensed organ temperature which is outside an acceptable temperature range.

21. A system for monitoring and controlling the temperature of an organ or tissue area during surgery, comprising:

a temperature sensor configured for engagement with the organ for sensing the temperature of the organ;

a temperature monitor for monitoring the sensed organ temperature;

an interface module for selecting a desired temperature of the organ during surgery;

means for continuously comparing said monitored organ temperature with said desired organ temperature;

at least one fluid reservoir containing a fluid;

a fluid temperature regulator for regulating the temperature of said fluid;

at least one fluid outlet conduit; and

a pump for pumping said fluid from said at least one source of fluid through said at least one fluid outlet conduit.

22. The system of claim 21 comprising a first fluid reservoir containing a first fluid having a regulated temperature of about human body temperature and a second fluid reservoir containing a second fluid having a regulated temperature below human body temperature.

23. The system of claim 22 wherein said first fluid is of the group consisting of saline and blood.

24. The system of claim 22 wherein said second fluid is of the group consisting of saline, cardioplegia, blood and a cardioplegia-blood solution.

25. A method for monitoring and controlling the temperature of an organ or tissue area during surgery, comprising the steps of:

providing the system of claim 1;

engaging said temperature sensor with the organ;

selecting an acceptable organ temperature;

sensing the temperature of the organ;

comparing said sensed organ temperature with said selected organ temperature;

regulating the temperature of said at least one fluid; and

pumping said fluid from said at least one source of fluid to the organ when said sensed organ temperature is not at the selected organ temperature.

26. The method of claim 25 wherein said acceptable organ temperature comprises a temperature range.

27. The method of claim 25 wherein said acceptable organ temperature is determined based on the surgical application being performed.

28. The method of claim 25 wherein said step of sensing is performed continuously.

29. The method of claim 25 wherein said step of sensing is performed on demand.

30. The method of claim 25 wherein said step of comparing is performed continuously.

31. The method of claim 25 wherein said step of comparing is performed on demand.

32. The method of claim 25 wherein said step of regulating comprises the step of continuously maintaining the temperature of said at least one fluid.

33. The method of claim 25 wherein said step of regulating comprises the step of adjusting the temperature of said at least one fluid.

34. The method of claim 25 wherein the organ is the heart.

35. The method claim 25 wherein the surgery is performed on a stopped heart and said at least one fluid is cardioplegia.

36. The method of claim 35 wherein said cardioplegia is cold.

37. The method of claim 35 wherein said cardioplegia is warm.

38. The method of claim 25 wherein the surgery is performed on a beating heart and said at least one fluid is saline.

39. The method of claim 38 wherein said saline is warm.